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V Hydrae.

1903. February 4—Less than B^2 of 6th magnitude, but visible in an opera-glass, and probably of 6.7 magnitude. February 12—6.7 magnitude. Moonlight. This is the date of expected maximum. February 19, 23, 25, 26—6.7 magnitude. March 3, 6, 16—6.7 magnitude. April 1—Slightly decreased in telescope and still more decreased in opera-glass. April 11, 16—Ditto. April 26—Of about 7th magnitude, but still visible in opera-glass.

SAN FRANCISCO, July 7, 1903.

PLANETARY PHENOMENA FOR SEPTEMBER AND
OCTOBER, 1903.

BY MALCOLM MCNEILL.

PHASES OF THE MOON, PACIFIC TIME.

Full Moon, Sept. 6, 4 ^h 20 ^m P.M.	Full Moon, Oct. 6, 7 ^h 24 ^m A.M.
Last Quarter, " 14, 5 14 A.M.	Last Quarter, " 13, 11 56 A.M.
New Moon, " 20, 8 31 P.M.	New Moon, " 20, 7 30 A.M.
First Quarter, " 28, 5 8 A.M.	First Quarter, " 28, 12 32 A.M.

The Sun reaches the equinox and autumn begins September 23d, 10 p. m., Pacific time.

There will be a total eclipse of the Sun on September 20th, but it will not be available for astronomical observations, as the path of totality lies in the most inaccessible region of the globe. It begins in the Indian Ocean, southeast of Africa, and runs eastward and then southward, ending near the South Pole. There is very little land from which even the partial phase of the eclipse can be seen; Madagascar and the southern portions of Australia and New Zealand are about all.

There will also be a partial eclipse of the Moon on October 6th, rather uninteresting to people in the United States, since no part of it will be visible here. It will be visible throughout most of the eastern hemisphere and will be not quite total.

Mercury begins the month as an evening star, coming to greatest east elongation on September 7th. It is then 27° from

the Sun, but it is also 10° south; so it remains above the horizon scarcely an hour after sunset, and will not be easily seen. It soon begins to approach the Sun quite rapidly, and passes inferior conjunction on October 3d, becoming a morning star. On October 18th it reaches its greatest west elongation, 18° . This is much smaller than the last; but now the planet is in a part of the zodiac north of that part where the Sun is, and consequently there is a much wider interval between the times of rising of the two bodies. During the latter half of the month *Mercury* will rise from an hour and a half to an hour before sunrise, and this will be the best time of the year for seeing the planet as a morning star.

Venus is an evening star at the beginning of September, too close to the Sun to be seen. It reaches inferior conjunction on September 17th, and becomes a morning star. Its motion is now northward and westward from the Sun, and in a very few days it can be seen in the morning twilight. On October 1st it rises an hour and a half before sunrise, and by November 1st more than three hours and a half. During October it will also be very bright, reaching the maximum on October 24th, and it may be seen in full daylight during the greater part of the month. At the time of inferior conjunction *Venus* is nearly 6° south of the Sun, being in the part of its orbit farthest from the ecliptic. Although the inclination of the orbit of *Venus* to the ecliptic is less than half that of *Mercury* (the greatest in the solar system except the asteroids), yet on account of its nearness to us at inferior conjunction it can attain a greater apparent distance from the ecliptic than any other planet. It is frequently stated in text-books that this distinction belongs to *Mercury*, but it is *Venus* which reaches the greatest latitudes.

Mars is still an evening star, but the Sun is gradually overtaking it in their common eastward motion. On September 1st it sets shortly after 9 P. M., on October 1st an hour earlier, and on November 1st before 8 P. M., less than three hours after sunset. Its total motion during September and October is about 45° eastward and 7° southward, from *Libra* through *Scorpio* into *Sagittarius*. On September 25th it passes about 2° south of β *Scorpii*, and on October 3d about 4° north of *Antares*, α *Scorpii*. Its distance from the Earth in millions of miles increases from 139 to 167, and in consequence of this

its brightness will diminish nearly 50 per cent, but there will be no difficulty in identifying it.

Jupiter comes to opposition with the Sun on September 11th, and is then above the horizon the entire night. Toward the end of October it will set an hour or more before sunrise. It is in the constellation *Pisces*, and during the two months moves about 6° westward and 2° southward.

Saturn is also in good position for evening view. It sets at about 2:30 A. M. on September 1st, at about 12:30 on October 1st, and at about 10:30 P. M. on November 1st. It is in the constellation *Capricorn*, and moves slowly westward until October 7th, and then moves eastward, but the whole range of motion is about 1° only.

Uranus is nearer the horizon than *Saturn*, setting shortly after 11 P. M. on September 1st, and at about 7:30 on November 1st. It is moving slowly eastward in *Ophiuchus* between *Scorpio* and *Sagittarius*. *Mars* passes it on October 24th, the brighter planet being about two diameters of the Moon farther south.

Neptune rises shortly after midnight on September 1st and at about 8:30 P. M. on November 1st. It is in the western part of *Gemini*, and moves slowly eastward until October 9th, and then begins to move westward.

(FORTY-FIFTH) AWARD OF THE DONOHOE
COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to JOHN GRIGG, Esq., of the Observatory, Thames, New Zealand, for his discovery of an unexpected comet on April 16, 1903.

The Committee on the Comet-Medal:

W. W. CAMPBELL.

WM. PIERSON.

CHAS. BURCKHALTER.
